

ITEM 17 AS SUBMITTED**OSHPD 1/99****PART 2, CHAPTERS 16 AND 19, SEISMIC DESIGN PROVISIONS FOR REINFORCED CONCRETE**

NOTE: DSASS has voluntarily withdrawn their involvement of this package. This item was originally submitted as a joint change item between DSASS and OSHPD.

AMEND AS FOLLOWS SECTIONS 1612.2.1, 1909.3.1.1, 1921, 1921.2.1.7, 1921.6.6.3, 1921.6.6.5, 1921.7.2.2, 1921.7.2.3:

**CALIFORNIA BUILDING CODE
CHAPTER 16
STRUCTURAL DESIGN REQUIREMENTS**

Section 1612.2.1 is amended to read as follows:

1612 – COMBINATIONS OF LOADS ...

1612.2 – Load Combinations Using Strength Design or Load and Resistance Factor Design.

1612.2.1 Basic load combinations. Where Load and Resistance Factor Design (Strength Design) is used, structures and all portions thereof shall resist the most critical effects from the following combinations of factored loads:

1.4D	(12-1)
1.2D + 1.6L + 0.5 (L _r or S)	(12-2)
1.2D + 1.6 (L _r or S) + (f ₁ L or 0.8W)	(12-3)
1.2D + 1.3W + f ₁ L + 0.5 (L _r or S)	(12-4)
1.2D + ± 1.0 E + (f ₁ L + f ₂ S)	(12-5)
0.9D ± (1.0E _h or 1.3W)	(12-6)

WHERE:

E = load effects of earthquake, or related internal moments and forces.

E_h = the earthquake load due to the base shear, V, as set forth in Section 1630.2 or the design lateral force, F_p, as set forth in Section 1632.

f₁ = 1.0 for floors in places of public assembly, for live loads in excess of 100 psf (4.9 kN/m²), and for garage live load.
= 0.5 for other live loads.

f₂ = 0.7 for roof configurations (such as saw tooth) that do not shed snow off the structure.

= 0.2 for other roof configurations.

EXCEPTIONS: 1. Factored load combinations for concrete per Section 1909.2 where load combinations do not include seismic forces.

**EXCEPTION NO 2. WAS
INADVERTENTLY NOT SHOWN**

**STRIKEN PER OSHPD'S
ORIGINAL SUBMITTAL & THE
SDF COMMITTEE
RECOMMENDATIONS.**

~~2. Factored load combinations of this section multiplied by 1.1 for concrete and masonry where load combinations include seismic forces.~~

~~2. 3. Where other factored load combinations are specifically required by the provisions of this code.~~

Chapter 19 is amended using the following method:

1. *ITALICS* used to indicate where the model code differs substantially from the ACI standard;
2. UNDERLINE and *ITALICS* used to indicate California Amendment(s);
3. ~~STRIKEOUT~~ used to indicate deletions; and,
4. DOUBLE UNDERLINE used to represent proposed revisions to the 1998 California Building Code.

**CHAPTER 19
CONCRETE**

Section 1909.3.1.1 is amended to read as follows:
1909.3 Design Strength ...

1909.3.1.1 If the structural framing includes primary members of other materials proportioned to satisfy the load-factor combinations of Section 1928.1.2, it shall be permitted to proportion the concrete members using the set of strength-reduction factors, *f*, listed in Section 1928.1.1 and the load-factor combinations in Section 1928.1.2. The provisions of this section shall not be used if resistance to specified earthquake loads or forces E are included in design.

Section 1921.0 is amended to read as follows:

**SECTION 1921 – REINFORCED CONCRETE
STRUCTURES RESISTING FORCES INDUCED BY
EARTHQUAKE MOTIONS**

Section 1921.0 Notations

$$\underline{D_m} = R_w D_s \quad \underline{D_M} = 0.7 R D_s$$

Section 1921.2.1.7 Item 2 is amended to read as follows:

2. All beam-to-column connections that are not part of the lateral-force-resisting system shall be designed in accordance with the following:

Connection design force. The connection shall be designed to develop strength *M*. *M* is the moment developed at the connection when the frame is displaced by *D_s*, assuming fixity at the connection and a beam flexural stiffness of no more than one-half of the gross section stiffness. *M* shall be sustained through a deformation of *D_m*.

Connection characteristics. The connection shall be permitted to resist moment in one direction only, positive or